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INCLUDING PATENT, TRADEMARK, COPYRIGHT  
AND UNFAIR COMPETITION MATTERS

June 3, 1997

Box PCT  
Assistant Commissioner for Patents  
Washington DC, 20231

Re: PCT patent application entitled JOINT ASSEMBLY EMPLOYING MULTI-RING GASKET (Serial No. PCT/US94/08087, Filed July 13, 1994)  
Our Ref. No.: P 94 194,006

Greetings:

Enclosed is a Response to the Written Opinion mailed April 3, 1997 for filing in the above-identified PCT patent application, including attached Replacement Sheets pages 38 - 48, and a post-card for the United States Patent and Trademark Office to acknowledge receipt. If there are additional fees associated with filing the Response, please charge them to deposit account no. 02-2451. Triplicate copies of this letter are enclosed.

Sincerely,

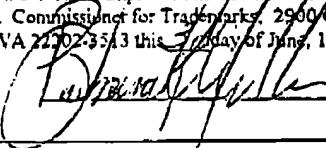
William A. Birdwell

WAB:bkm  
Enclosures

3:caris/translr.-006

CERTIFICATE OF EXPRESS MAILING  
MAILING LABEL NO. EH402106583US

I hereby certify that this correspondence is being deposited with the United States Postal Service as Express Mail under 37 CFR 1.10 addressed to: Asst. Commissioner for Trademarks, 2900 Crystal Drive, Arlington, VA 22204-3543 this 3rd day of June, 1997.



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INTELLECTUAL PROPERTY LAW  
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**FACSIMILE COVER LETTER**

Please deliver the following pages to:

NAME: Will Ackerman

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*3687*

FAX NO: 703-308-3697 (Informal fax number)

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FROM: Barbara Kulin

DATE: February 4, 1999

Total number of pages including this cover sheet: 40

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Our Ref.: P 94 194.006

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Message: I hope this helps. Give me a call when you figure out what we should do. Thanks a lot! -Barb

fixed:  
Date:  
Time:  
By:

EH402106583US

Receipt is hereby acknowledged by the U.S. Patent and Trademark Office of:

International Application containing:

Request: \_\_\_\_\_ sheets  
Description: \_\_\_\_\_ sheets  
Claims: \_\_\_\_\_ sheets  
Abstract: \_\_\_\_\_ sheets  
Drawings: \_\_\_\_\_ sheets

Check for \$ \_\_\_\_\_

Demand for Int'l Examination

Amendments under:  
 Article 19  
 Article 34

Transmittal Letter/Statement with Amendments

Statement Explaining Lack of Signature

Other: Replacement SHEETS  
PAS 38-48

Fee Calculation Sheet

Separate Signed Power of Attorney

Express Mail Certificate

Title: JOINT ASSEMBLY EMPLOYING MULTI-RING HASSOC

Applicant: CARR, RON

Int'l App. No.: PCT/US94/08087

Dkt. No.: P94 194.002  
10-3-97

Int'l Filing Date: 7-13-94  
Priority Date: None

ppated.com

## PATENT COOPERATION TREATY

From the  
INTERNATIONAL PRELIMINARY EXAMINING AUTHORITY

*Corrected*  
*Copy*

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PCT

WILLIAM A. BIRDWELL

To: WILLIAM A. BIRDWELL  
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NOTIFICATION OF TRANSMITTAL OF  
INTERNATIONAL PRELIMINARY  
EXAMINATION REPORT

(PCT Rule 71.1)

Date of Mailing  
(day/month/year)

27 AUG 1997

Applicant's or agent's file reference

P.94 194,006

IMPORTANT NOTIFICATION

International application No.

PCT/US94/08087

International filing date (day/month/year)

13 JULY 1994

Priority Date (day/month/year)

NONE

Applicant

CARR, RONALD L.

1. The applicant is hereby notified that this International Preliminary Examining Authority transmits herewith the international preliminary examination report and its annexes, if any, established on the international application.
2. A copy of the report and its annexes, if any, is being transmitted to the International Bureau for communication to all the elected Offices.
3. Where required by any of the elected Offices, the International Bureau will prepare an English translation of the report (but not of any annexes) and will transmit such translation to those Offices.
4. REMINDER

The applicant must enter the national phase before each elected Office by performing certain acts (filing translations and paying national fees) within 30 months from the priority date (or later in some Offices)(Article 39(1))(see also the reminder sent by the International Bureau with Form PCT/IB/301).

Where a translation of the international application must be furnished to an elected Office, that translation must contain a translation of any annexes to the international preliminary examination report. It is the applicant's responsibility to prepare and furnish such translation directly to each elected Office concerned.

For further details on the applicable time limits and requirements of the elected Offices, see Volume II of the PCT Applicant's Guide.

Name and mailing address of the IPEA/US  
Commissioner of Patents and Trademarks  
Box PCT  
Washington, D.C. 20231

Authorized officer

JUDY J. SWANN

STEPHEN MARCUS  
SPECIAL PROGRAM EXAMINER  
GROUP 9200

## PATENT COOPERATION TREATY

## PCT

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

(PCT Article 36 and Rule 70)

*Corrected Copy*

Applicant's or agent's file reference P 94 194.006	FOR FURTHER ACTION	See Notification of Transmittal of International Preliminary Examination Report (Form PCT/IPEA/416)
International application No. PCT/US94/08087	International filing date (day/month/year) 13 JULY 1994	Priority date (day/month/year) NONE
International Patent Classification (IPC) or national classification and IPC IPC(6): F16L 17/00, 23/16 and US CL: 285/363, 910: 277/207A		
Applicant CARR, RONALD L.		

1. This international preliminary examination report has been prepared by this International Preliminary Examining Authority and is transmitted to the applicant according to Article 36.

2. This REPORT consists of a total of 6 sheets.

This report is also accompanied by ANNEXES, i.e., sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications made before this Authority. (see Rule 70.16 and Section 607 of the Administrative Instructions under the PCT).

These annexes consist of a total of 11 sheets.

3. This report contains indications relating to the following items:

- I  Basis of the report
- II  Priority
- III  Non-establishment of report with regard to novelty, inventive step or industrial applicability
- IV  Lack of unity of invention
- V  Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- VI  Certain documents cited
- VII  Certain defects in the international application
- VIII  Certain observations on the international application

Date of submission of the demand 13 FEBRUARY 1996	Date of completion of this report 08 JULY 1997
Name and mailing address of the IPEA/US Commissioner of Patents and Trademarks Box PCT Washington, D.C. 20231	Authorized officer <i>Judy J. Swann</i> JUDY J. SWANN STEPHEN MARCUS SPECIAL PROGRAM EXAMINER

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US94/08087

**I. Basis of the report**

1. This report has been drawn on the basis of (Substance sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to the report since they do not contain amendments):

 the international application as originally filed. the description, pages (See Attached), as originally filed.

pages \_\_\_\_\_, filed with the demand.

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

pages \_\_\_\_\_, filed with the letter of \_\_\_\_\_

 the claims, Nos. (See Attached), as originally filed.

Nos. \_\_\_\_\_, as amended under Article 19.

Nos. \_\_\_\_\_, filed with the demand.

Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_

Nos. \_\_\_\_\_, filed with the letter of \_\_\_\_\_

 the drawings, sheets/fig (See Attached), as originally filed.

sheets/fig \_\_\_\_\_, filed with the demand.

sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_

sheets/fig \_\_\_\_\_, filed with the letter of \_\_\_\_\_

2. The amendments have resulted in the cancellation of:

 the description, pages NONE. the claims, Nos. NONE the drawings, sheets/fig NONE

3.  This report has been established as if (some of) the amendments had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the ~~Supplementary Box~~ Additional observations below (Rule 70.2(c)).

4. Additional observations, if necessary:

NONE

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

PCT/US94/08087

**V. Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement****1. STATEMENT**

Novelty (N)	Claims <u>1-27, 29-33, 35-38, 40-54</u>	YES
	Claims <u>28, 34, 39</u>	NO
Inventive Step (IS)	Claims <u>1-27, 29-33, 35-38, 40-54</u>	YES
	Claims <u>28, 34, 39</u>	NO
Industrial Applicability (IA)	Claims <u>1-54</u>	YES
	Claims <u>NONE</u>	NO

**2. CITATIONS AND EXPLANATIONS**

Claims 28, 34, 39 all lack novelty and inventive step under PCT Articles 33(2) and 33(3) because Merwarth (U.S. RE 11,858) (See Figs. 1, 3, 4; page 1, line 58- p. 2, line 34) teaches each and every claimed feature of claims 28, 34, 39. Also, Dutton (U.S. 4,269,417) teaches (Fig. 1) each and every claimed feature of claims 28, 34, and 39.

Claims 1-27, 29-33, 35-38, 40-54 all meet the standards for novelty and inventive step set forth in PCT Articles 33(2) and 33(3). Claims 1, 2, 4-20, and 50 all possess the novel and inventive step feature of having at least one alignment spoke that has a concavity for placement adjacent a fastener. Claims 3, 42-49 all have the novel and inventive step feature of at least one alignment spoke with a radially elongate aperture formed therein. Claims 21-27, 51, 52 all set forth the novel and inventive step feature {of at least one notch formed in the outer periphery} of at least one strip of sealing material, wherein such a notch is capable of receiving a thickness gauge. Claims 29, 35-38 possess the novel and inventive step feature of having a sealing material portion between the first strip and the second sealing material portion between the first strip and second strips. Claim 30 contains the novel and inventive step feature of a tab extending beyond the outer peripheries of the flanges. Claim 31 possesses the novel and inventive step feature of a third strip of sealing material disposed between the first and second strips. Claims 32 and 40 have the novel and inventive step feature of the sealing material having the property that it compresses in the direction of the applied compressive force without substantial expansion lateral thereto. Claims 33 and 41 set forth the novel and inventive step feature of the sealing material of having a durometer less than 95 as measured by a durometer having a Shore A scale of 0-100. Claims 53 and 54 contain the novel and inventive step feature of the outer periphery of the first strip being partially rectilinear.

Claims 1-54 all meet the standards for industrial applicability under PCT Article 33(4) because the product and process claimed can be used in the pipe-joining industry.

**----- NEW CITATIONS -----**

NONE

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.—

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**VII. Certain defects in the international application**

The following defects in the form or contents of the international application have been noted:

In Claim 28, line 13, "said first" lacks a space between the two words.

In claim 31, line 7, "oultre" is a misspelling.

In claim 35, line 6, "thanthe" lacks a space between words and misspells "than".

In claim 35, line 12, "ssignificantlythinner" lacks a space between words and misspells "signigicantly".

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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**VIII. Certain observations on the international application**

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

The drawings fail to meet the standards for clarity set forth under PCT Article 5 because the feature of a sealing material part that is disposed between the first and second strips and that is significantly thinner than the first and second strip (as claimed in claims 29, 35-38) is not clearly shown in any of the drawings.

Claim 34 fails to meet the standards for clarity under PCT Article 6 as claim 34 ends with a ";", which indicates that a portion of the claim might be missing.

## INTERNATIONAL PRELIMINARY EXAMINATION REPORT

International application No.

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**Supplemental Box**  
(To be used when the space in any of the preceding boxes is not sufficient)

Continuation of: Boxes I - VIII

Sheet 10

## I. BASIS OF REPORT:

This report has been drawn on the basis of the description,  
pages, 1-20, as originally filed.  
pages, NONE, filed with the demand.  
and additional amendments:  
NONE

This report has been drawn on the basis of the claims,  
numbers, NONE, as originally filed.  
numbers, NONE, as amended under Article 19.  
numbers, NONE, filed with the demand.  
and additional amendments:  
Claim Numbers 1-54, filed with the letter of 03 June 1997.

This report has been drawn on the basis of the drawings,  
sheets, 1-16, as originally filed.  
sheets, NONE, filed with the demand.  
and additional amendments:  
NONE

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*Duplicates  
Cancelled  
AP*

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**AMENDED CLAIMS**

1. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

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a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery and an outer periphery, at least one of said inner and outer peripheries being substantially congruent with one of the peripheries of at least one flange; and

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at least one alignment spoke of said sealing material attached to said first strip so as to extend outwardly therefrom, said alignment spoke having a concavity for placement adjacent a fastener.

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2. The gasket of claim 1, wherein said alignment spoke includes at least one centering shelf for centering the gasket, said centering shelf being substantially congruent with said one of the peripheries of at least one flange.

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3. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

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a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery and an outer

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periphery, at least one of said inner and outer peripheries being substantially congruent with one of the peripheries of at least one flange; and

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at least one alignment spoke of said sealing material attached to said first strip so as to extend outwardly therefrom, wherein said alignment spoke includes a radially elongate aperture formed therein for receiving the fastener in a plurality of dispositions relative to the flanges.

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4. The gasket of claim 1, wherein said spoke includes a tab portion extending beyond the outer peripheries of the flanges.

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5. The gasket of claim 4, wherein said tab portion includes identification data disposed thereon.

6. The gasket of claim 1, wherein said first strip includes at least one notch in said outer periphery thereof.

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7. The gasket of claim 1, wherein said outer periphery of said first strip is partially rectilinear.

8. The gasket of claim 7, wherein said spoke is defined by said sealing material disposed at the intersection between two linear portions of said partially rectilinear periphery.

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9. The gasket of claim 1, wherein said sealing material is resilient and has a hardness less than the hardness of at least one of said flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

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10. The gasket of claim 1, wherein said sealing material compresses in the direction of applied compressive force when the flanges are drawn together without substantial expansion lateral thereto.

10

11. The gasket of claim 1, wherein said sealing material is resilient and has a hardness characterized by a durometer less than 95 measured by a Shore A scale ranging from zero to one hundred.

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12. The gasket of claim 11, wherein said sealing material has a durometer of about 55-70.

13. The gasket of claim 1, wherein said first strip and said spoke comprise a single, substantially flat piece of sealing material.

20

14. The gasket of claim 1, wherein said first strip and said spoke are made of a substantially flat, chemically inert and compressible sealing material.

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15. The gasket of claim 14, wherein said sealing material is polytetrafluoroethylene (PTFE).

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16. The gasket of claim 14, wherein said sealing material is fluoroelastomer (FFM).

17. The gasket of claim 14, wherein said sealing material is ethylene propylene rubber (EPR).

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18. The gasket of claim 14, wherein said sealing material is polyvinylidene fluoride (PVDF).

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19. The gasket of claim 1, wherein said sealing material is neoprene (CR).

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20. The gasket of claim 1, wherein said first strip and said spoke have a substantially uniform thickness between the inner periphery of the flanges and outer periphery of the flanges.

10

21. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around the flanges, comprising:

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at least one strip of sealing material formed in a substantially continuous loop having a predetermined shape, each of said strips having an inner periphery and an outer periphery, at least one of said inner and outer peripheries being substantially congruent with one of the peripheries of at least one flange, wherein said first strip is resilient so as to compress when the flanges are drawn together; and

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at least one notch formed in the outer periphery of at least one strip of sealing material adapted for receiving a thickness gauge, for measuring a change in the thickness of said strip of sealing material when the flanges are drawn together and said sealing material compresses.

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22. The gasket of claim 21, wherein there are a plurality of strips of sealing material, at least two of said strips being substantially concentric.

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23. The gasket of claim 21, wherein said outer periphery having said notch is partially rectilinear.

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24. The gasket of claim 21, comprising a first strip of sealing material having said inner periphery substantially congruent with the inner periphery of at least one flange, and a second strip of sealing material having an outer periphery with each said notch formed therein,

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and a plurality of spokes of sealing material, each of said spokes disposed between and attached to said first strip and said second strip.

10 25. The gasket of claim 24, further comprising, between said first strip of sealing material, said second strip of sealing material and two or more of said spokes, sealing material significantly thinner than that which forms said first strip, said second strip and said spokes.

15 26. The gasket of claim 24, wherein there are a plurality of said notches, and said spokes extend between said strips at the locations of said notches.

27. The gasket of claim 24, wherein the inner periphery of said second strip includes a convexity opposite the location of each said notch.

20 28. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery of known size and an outer periphery of known size and shape, and a plurality of fasteners disposed around said flanges, comprising:

25 (a) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of the inner periphery of at least one flange;

30 (b) a second strip of sealing material formed in a substantially continuous loop having a predetermined shape, said second strip having an inner periphery whose size is greater than the size of said outer periphery of said first strip and less than the size of the outer periphery of at least one flange; and

35 (c) a plurality of spokes of sealing material, each disposed between and attached to said first strip and said second strip, and extending between said first strip and said second strip, said sealing material being resilient and the hardness of said

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sealing material being less than the hardness of at least one of the flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

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29. The gasket of claim 28, further comprising, between said first strip of sealing material, said second strip of sealing material and two or more of said spokes, sealing material significantly thinner than that which forms said first strip, said second strip and said spokes.

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30. The gasket of claim 28, further comprising a tab extending beyond said outer peripheries of the flanges.

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31. The gasket of claim 28, further comprising a third strip of sealing material formed in a substantially continuous loop having a predetermined shape, said third stripe being disposed between said first strip and said second strip and having an inner periphery whose size is greater than the size of said outer periphery of said first strip and an outer periphery whose size is less than the size of said inner periphery of said second strip, said outer periphery of said second strip being substantially congruent with the outer periphery of a first flange and said outer periphery of said third strip being substantially congruent with the outer periphery of a second flange.

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32. The gasket of claim 28 wherein said sealing material has the property that it compresses in the direction of applied compressive force without substantial expansion lateral thereto.

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33. The gasket of claim 28 wherein said sealing material has a durometer less than 95 a as measured by a durometer having a Shore A scale ranging from zero to one hundred.

34. An assembly, comprising:

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(a) a first flange having an inner periphery and an outer periphery;

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(b) a second flange, having an inner periphery and an outer periphery, disposed substantially adjacent and parallel to said first flange, thereby defining a joint between said first flange and said second flange;

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(c) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of said inner periphery of at least one of said flanges and being disposed between said first flange and said second flange;

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35. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

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a first strip of sealing material formed in a substantially-continuous loop having a predetermined shape said first strip having an outer periphery whose size is greater than the size of the inner periphery of at least one flange;

25

a second strip of sealing material formed in a substantially-continuous loop having a predetermined shape said second strip having an inner periphery whose size is greater than said outer periphery of said first strip and less than the outer periphery of said flanges; and

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intermediate sealing material disposed between said first strip and said second strip, said intermediate sealing material being significantly thinner than said first strip and said second strip.

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36. The gasket of claim 35, further comprising at least one spoke of sealing material extending between and attached to said first strip and said second strip, said first strip, second strip and spokes being of substantially uniform thickness

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37. The gasket of claim 35, further comprising a plurality of spokes of sealing material, each extending between and attached to said first strip and said second strip, said first strip, second strip and spokes being of substantially uniform thickness.

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38. The gasket of claim 37, wherein said first strip, said second strip and said spokes have substantially uniform thickness from a boundary inside said outer periphery of said first strip to a boundary outside said inner periphery of said second strip.

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39. A method for assembling a pair of pipe flanges, comprising the steps of:

(a) placing the flanges adjacent one another in substantially parallel relation;

(b) placing between the flanges a gasket, said gasket having:

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(i) a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an outer periphery whose size is greater than the size of the inner periphery of at least one of the flanges;

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(ii) a second strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery whose size is greater than the size of said outer periphery of said first strip and less than the size of the outer periphery of at least one of the flanges; and

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(iii) a plurality of spokes of sealing material, each disposed between and attached to said first strip and said second strip, and extending between said first strip and said second strip;

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(c) placing a plurality of fasteners around the flanges; and

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(d) forcibly drawing the flanges together, said sealing material being resilient and the hardness of said sealing material being less than the hardness of at least one of the flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

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40. The method of claim 39 further comprising the step of selecting sealing material having the property that it compresses in the direction of applied compressive force without substantial expansion lateral thereto.

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41. The method of claim 39 further comprising the step of selecting sealing material having a durometer less than 95 as measured by a durometer having a Shore A scale ranging from zero to one hundred.

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42. The gasket of claim 3, wherein said spoke includes at least one centering shelf for centering the gasket, said centering shelf being substantially congruent with said one of the peripheries of at least one flange.

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43. The gasket of claim 3, wherein said spoke includes a tab portion extending beyond the outer peripheries of the flanges.

44. The gasket of claim 43, wherein said tab portion includes identification data disposed thereon.

45. The gasket of claim 3, wherein said sealing material is resilient and has a hardness less than the hardness of at least one of said flanges so that said sealing material compresses when the flanges are drawn together and expands to maintain a seal when the space between the flanges increases.

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46. The gasket of claim 45, wherein said sealing material is resilient and has a hardness characterized by a durometer less than 95 Shore A.

10 47. The gasket of claim 45, wherein said sealing material has a durometer of about 55-70 Shore A.

48. The gasket of claim 3, wherein said first strip and said spoke comprise a single, substantially flat, chemically inert and compressible piece of sealing material.

15 49. The gasket of claim 3, wherein said first strip includes at least one notch in said outer periphery thereof.

20 50. The gasket of claim 8, wherein said first strip and spoke comprise a single, substantially flat, chemically inert and compressible piece of sealing material.

51. The gasket of claim 21, wherein said strip of sealing material has a substantially uniform width, wherein said notch forms a re-entrant portion of said strip and wherein the width of said strip is substantially maintained along said notch.

25 52. The gasket of claim 21, wherein said notch is spaced substantially equidistantly from an adjacent pair of the fasteners.

30 53. A gasket for providing a seal at the joint between a pair of pipe flanges for connecting one flange to the other, each flange having an inner periphery and an outer periphery, the joint having a plurality of fasteners disposed around said flanges, comprising:

a first strip of sealing material formed in a substantially continuous loop having a predetermined shape, said strip having an inner periphery and an outer periphery, said inner periphery of said first strip being substantially

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congruent with one of the peripheries of at least one flange, wherein said outer periphery of said first strip is partially rectilinear.

10 54. The gasket of claim 53, further comprising at least one spoke of said sealing material attached to said first strip so as to extend outwardly therefrom, said spoke having a concavity for placement adjacent a fastener, wherein said spoke is defined by said sealing material disposed at the intersection between two linear portions of said partially rectilinear periphery.